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CITY OF CHICAGO
Chicago, Illinois

LIMITED SOIL INVESTIGATION AND PAINT SAMPLING

FORMER DUTCH BOY PAINT SITE

Chicago, Illinois

HARZA
ENVIRONMENTAL SERVICES, INC. *Consulting Engineers*

June 1994

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1.0 INTRODUCTION

Harza Environmental Services, Inc. (Harza) was retained by the City of Chicago to conduct a limited background review and environmental investigation of the NL Industries/Dutch Boy site at 12000-12054 South Peoria Street, Chicago, Illinois. The purpose of the study was to further explore the presence of major environmental concerns possibly associated with the site.

The NL Industries/Dutch Boy site is located in a mixed residential and industrial area of Section 29, Township 37 North, Range 14 East in Cook County, Illinois (Figure 1). The study area occupies the southwest corner of the intersection of 120th and Peoria Streets. It is bordered on the north by 120th Street, on the east by Peoria Street, on the west by an abandoned industrial property and on the south by railroad tracks.

2.0 BACKGROUND REVIEW

A limited background review was conducted to identify site features potentially related to environmental concerns and to collect data for use in planning the site investigations. The background review was not planned, nor completed, as a Phase I environmental site assessment, but included a site inspection, review of available Sanborn maps, and requests under the Freedom of Information Act (FOIA) for records pertaining the environmental conditions at the site.

2.1 Site Inspection

A limited site inspection was conducted to review current site conditions, note environmental concerns and identify and mark planned boring locations. During the inspection, various potential environmental concerns were observed, including the following:

- Several uncovered manholes in the northern, western and southern portion of the site. Some are associated with underground storage tanks, while the purpose of others could not be determined.
- Four storage tanks in the basement of the Mill Building. The tanks are approximately 11,000 to 12,000 gallons in size (visual estimate). Their condition could not be determined because of inaccessibility to the basement.
- Discolored soil observed in the southern portion of the site.
- Trash and building debris throughout the site.

2.2 Sanborn Fire Insurance Maps

Sanborn Fire Insurance Maps were reviewed to identify past land uses that might have resulted in contamination. The Sanborn Maps were obtained from Environmental Risk Information & Imaging Services, Inc. (ERIIS). Sanborn maps from 1939, 1950, 1975 and 1987 were reviewed. The 1939 map shows the site occupied by the National Lead Company. Several buildings occupy the site. The northern portion is occupied by the corroding house and a concrete platform. The southern portion of the site is occupied by several structures, including a mill house, office, wash house, machine shop, two oil houses, warehouse, oxide room, and three unlabeled buildings. Railroad tracks are noted along the central and western portion of the site. The 1950 map is similar to the 1939 map. However, there are buried linseed oil tanks noted along the northwest side and a building labeled welfare rooms in the southwest. There

is also a Finished & Raw Stock Warehouse along the southern boundary of the property. The 1975 map is similar to 1950 except there are five circular structures near the central oil house. These are unlabeled. The 1987 map shows the property as being vacant.

2.3 Document Review

FOIA requests were submitted to the City of Chicago Department of Environment and Department of Permits, pertaining to environmental conditions at the site. Currently, a response has been received from the Department of Environment and are attached in Appendix E. Other responses will be forwarded to the Department of Law when received.

3.0 SITE INVESTIGATION

Paint and dust sampling and a limited soil investigation were conducted to determine the presence or absence of lead dust, lead paint and soil contamination in the areas sampled.

3.1 Paint & Dust Sampling

Thirteen scrape samples and thirteen wipe samples were collected from wall surfaces within the abandoned mill building. Sampling was conducted on May 10, 1994 by Harza personnel, observed by Ms. Deborah Romanowski of Simon-Hydrosearch, representing NL-Industries.

The mill building is a three story structure with a basement. One wipe sample and one scrape sample were collected from the north, south, east, and west sides of each of the three stories. An additional scrape and wipe sample was collected from the second floor in the easternmost room. No samples were collected from the basement, which was partly filled with water and inaccessible at the time of sampling.

Wipe samples were collected by wiping filter paper soaked with nitric acid over a 4 inch by 4 inch area. Scrape samples were collected by using a stainless steal flat head screw driver. Samples were placed in clean glass jars and labeled. Sampling equipment was decontaminated between each location by distilled water rinse. Samples were analyzed by Great Lakes Analytical (GLA) of Buffalo Grove, Illinois. Chain of Custody protocols were observed and forms are included in Appendix A.

The wipe samples were analyzed for lead by area and the scape samples for lead by weight. Results are provided in Appendix A and were compared to the Illinois Department of Public Health (IDPH) definition of a lead bearing substance. According to the IDPH, dust is considered lead-bearing if it contains greater than 1 milligram per square centimeter (mg/cm^2) of lead and paint is considered lead-bearing if it contains 0.5 percent lead by weight. Seven of the thirteen wipe samples analyzed exceeded these guidelines. These are as follows:

- 1N (First floor, north, white paint) . . . . 31 mg/cm^2
- 1E (First floor, east, white paint) . . . . 40 mg/cm^2
- 2E (Second floor, east, white paint) . . . . 3.1 mg/cm^2
- 2Ea (Second floor, east room, yellow paint) . . . . 36 mg/cm^2
- 2N (Second floor, north, white paint) . . . . 8 mg/cm^2
- 3W (Third floor, west, green paint) . . . . 2.1 mg/cm^2
- 3E (Third floor, east, blue green paint) . . . . 4.2 mg/cm^2
- 3N (Third floor, north, light green paint) . . . . 15 mg/cm^2

Eight of the thirteen scrape samples were above IDPH guidelines, as follows:

- 1N (First floor, north, white paint) . . . . . 4.2 %
- 1W (First floor, west, white paint) . . . . . 8.1 %
- 1E (First floor, east, white paint) . . . . . 25 %
- 2E (Second floor, east, white paint) . . . . . 3.1 %
- 2Ea (Second floor, east room, yellow paint) . . . . . 2.9 %
- 2N (Second floor, north, white paint) . . . . . 2.0 %
- 3E (Third floor, east, blue green paint) . . . . . 1.3 %
- 3N (Third floor, north, light green paint) . . . . . 16 %

3.2 Soil Investigation

Seven soil samples were collected from seven soil borings on May 11, 1994. Soil borings are shown on Figure 2. Drilling was completed by Testing Services Corporation of Carol Stream, Illinois, under subcontract to Harza. All drilling operations were monitored in the field by Harza. Borings were advanced with a truck mounted drill rig and a combination of solid and hollow stem augers. The borings were drilled to a depth of fifteen feet each. After completion the borings were backfilled with bentonite. Auger cuttings from the borings were placed in 55-gallon drums. Augers were decontaminated with high-pressure spray before mobilizing to the site, between each boring and before leaving the site. Sampling tools used to collect soil samples for laboratory analysis were decontaminated between each use by washing with Alconox and rinsing with distilled water. Decontamination rinsates were contained and placed in a 55-gallon drum. Two 55-gallon drums of soil cuttings and one 55 gallon drum of rinsate water were collected and picked up by Chemical Waste Management Inc., of Alsip, Illinois for testing and proper disposal. Appendix B provides a copy of the Hazardous Waste Manifest. Field boring logs were prepared by a Harza geologist and are presented in Appendix C.

One soil sample was collected from each boring for laboratory analysis. Samples were collected using a 2-inch diameter split spoon samplers and Standard Penetration Test (SPT) methods. Samples were retrieved from vertical depth intervals variably between 6 and 15 feet. However, the sample collected from Boring 6 was collected at a depth interval of 1.0 to 2.5 feet because of an HNU reading of 70 parts per million in that zone. Samples were screened as they were retrieved using an HNU Photoionization Detector (PID) fitted with a 10.2 eV probe. The HNU measures total volatile organic concentrations in air and readings are documented on the boring logs. All samples except soil sample (SS) six had readings at or below background levels. Therefore, all samples except SS-6 were collected just above a clay layer.

Soil samples were analyzed by GLA for selected total inorganics, Toxicity Characteristics Leaching Procedure (TCLP) lead, and Target Compound List volatile and semi-volatile organic chemicals. Results are provided in Appendix D and summarized in the following paragraphs. It is noted that inorganic analyses requested for the study were limited to arsenic, cadmium, cyanide, lead and titanium. By error, GLA analyzed the samples for titanium plus 22 metals and cyanide on the Target Analyte List (TAL). All these results are reported. GLA also analyzed for TCLP organic chemicals, by error. However, no significant detections were reported and these results are not appended.

A. **Inorganic Parameters.** Antimony, barium, beryllium, mercury, selenium, silver, and thallium were not detected in any sample. The remaining inorganic elements tested for are natural constituents of soil and most concentrations are within typical background levels in Illinois. Aluminum, arsenic, cadmium calcium, chromium, copper, iron, magnesium, nickel, potassium, sodium, titanium, vanadium, and zinc were detected in all sample. Cyanide and cobalt were detected in only one of the samples each, both near the detection limit and within typical ranges for Illinois soils. These do not appear to represent contamination. Lead concentrations in most samples ranged between 5.5 mg/kg and 10.0 mg/kg, within typical ranges in Illinois. However,

a concentration of 1,000 mg/kg was detected in the sample from SS-6, above the typical range, and 220 mg/kg from SS-4, below the typical range, but clearly elevated compared to other sample results. Both of these results probably represent contamination. It is noted that the sample from SS-6 was collected from a shallow depth interval (1.0 to 2.5 feet), while the other samples were from depth intervals of 6 to 12.5 feet. Therefore, shallow soils at other locations may also contain elevated lead levels. No other constituents appear significantly affected.

B. **TCLP Lead.** TCLP lead was detected in each sample, ranging from 0.041 mg/L in SS4 to 0.50 mg/L in SS6, all well below the RCRA level for hazardous waste.

C. **Volatile Organic Compounds.** Volatile organic compounds (VOCs) were detected in SS-2, SS-3, SS-5, SS-6 and SS-7. Acetone was detected in SS-2 and SS-3 at 180 and 190 at ug/kg respectively. Acetone is a common laboratory contaminant. Ethylbenzene was detected at 540 ug/kg in SS-5. Tetrachloroethene was detected in SS-5 at 48,000 ug/kg. Trichloroethene was detected at 4,300 ug/kg in SS-5 and 10 ug/kg in SS-7. Xylenes (total) were detected at 56 ug/kg in SS-6. No other volatile organics were detected.

D. **Semi-Volatile Organic Compounds.** Napthalene and 2-methylnaphthalene were detected in SS-6 at 180 ug\kg and 110 ug/kg respectively. No other semi-volatile organic compounds were detected in any other soil sample.

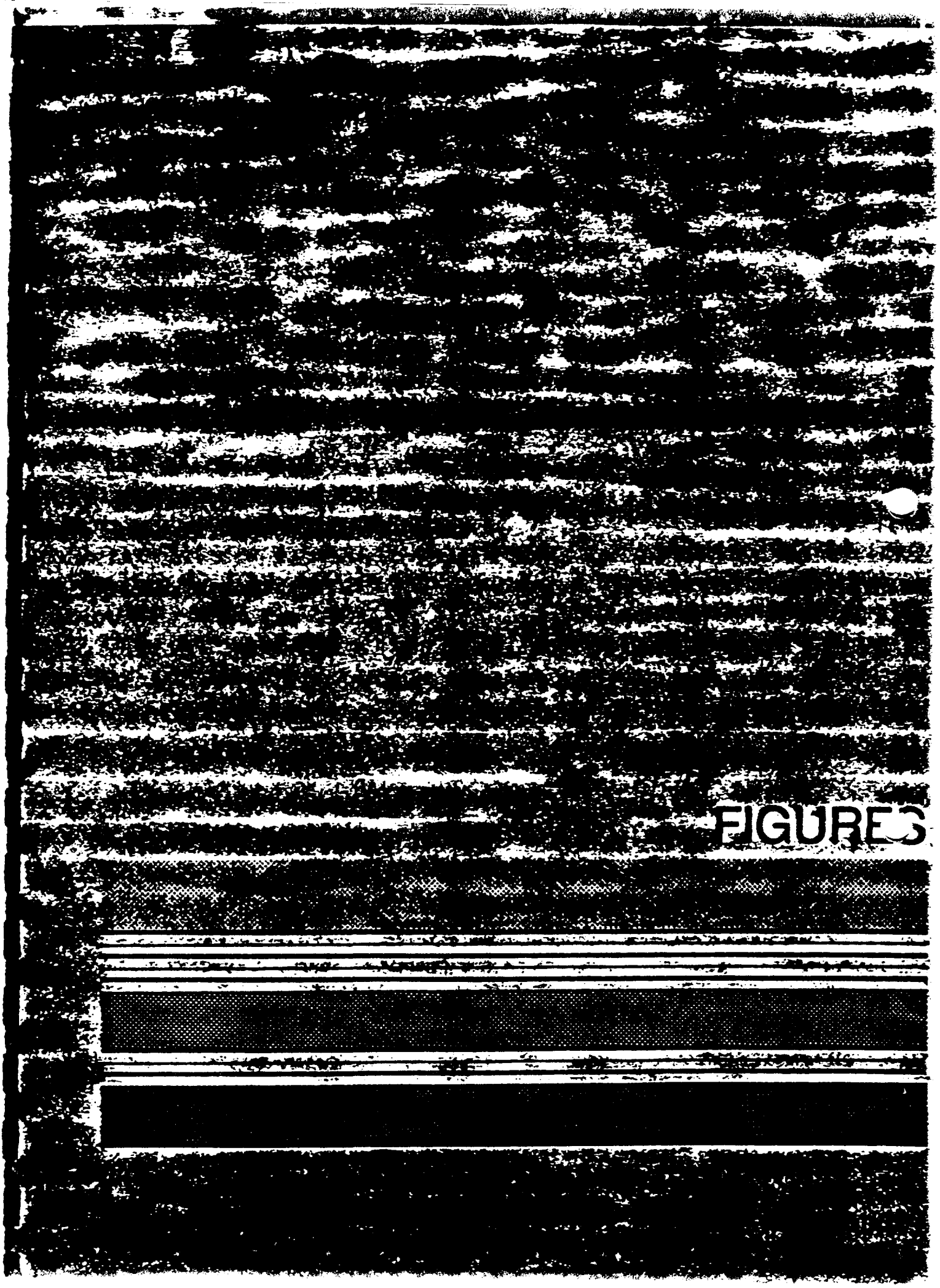
4.0 CONCLUSIONS

Principal Conclusions derived from the investigation at the NL-Industries/Dutch Boy Paint site are as follows:

- Scrape and wipe sampling within the abandoned mill building clearly indicates the presence of lead bearing dust and lead based paint.

- Soil sampling indicates the presence of elevated levels of lead at some sampling locations. However, by in large, concentrations of other inorganics are within ranges typical of Illinois soils. The soil samples also indicate the presence of small concentrations of a few volatile and semi-volatile organic chemicals. However, contamination by organic chemicals does not appear to be a major problem at the sampling locations. It is noted that previous sampling locations by others were not resampled and there are several areas of contamination elsewhere within the site.

During the site inspection various potential environmental concerns were noted, including: Several uncovered manholes observed in the northern, western, and southern portions of the site, some associated with underground storage tanks; Four storage tanks noted in the southern portion of the mill building; Trash and building debris throughout the site; and discolored soil observed in the southern portion of the site. These could not all be explored within the scope of this study.


FIGURES

GREAT LAKES ANALYTICAL 1380 Busch Parkway • Buffalo Grove, Illinois 60089 (708) 808-7766 FAX (708) 808-77

Harza Environmental Services, Inc.
233 South Wacker Dr., 8th Floor
Chicago, IL 60606
Attention: Kelly Kennoy

Client Project ID: 5541G, Dutch Boy Paint
Sample Descript: Wipe
Analysis for: Lead by EPA 3050/6010
First Sample #: 405-0654

Sampled: May 10, 199
Received: May 11, 199
Analyzed: May 17, 199
Reported: May 18, 199

LABORATORY ANALYSIS FOR: Lead by EPA 3050/6010

Sample Number	Sample Description	Detection Limit mg/cm2	Sample Result mg/cm2
405-0654	3E	0.097	4.2
405-0655	3N	0.097	15

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Kevin W. Keeley
Laboratory Director

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Harza Environmental Services, Inc.
233 South Wacker Dr., 8th Floor
Chicago, IL 60606
Attention: Kelly Kennoy

Client Project ID: 5541G, Dutch Boy Paint
Sample Descript: Paint Chips
Analysis for: Lead by EPA 3050/6010
First Sample #: 405-0654

Sampled: May 10, 1994
Received: May 11, 1994
Analyzed: May 17, 1994
Revised Report: May 26, 1994

LABORATORY ANALYSIS FOR: Lead by EPA 3050/6010

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg	Detection Limit %	Sample Result %
405-0654	3E	5.0	13,000	0.00050	1.3
405-0655	3N	11	160,000	0.0011	16

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Harza Environmental Services, Inc.
233 South Wacker Dr., 8th Floor
Chicago, IL 60606
Attention: Kelly Kennoy

Client Project ID: 5541G, Dutch Boy Paint
Sample Descript: Wipe
Analysis for: Lead by EPA 3050/6010
First Sample #: 405-0643

Sampled: May 10, 19
Received: May 11, 19
Analyzed: May 17, 19
Reported: May 18, 19

LABORATORY ANALYSIS FOR: Lead by EPA 3050/6010

Sample Number	Sample Description	Detection Limit mg/cm2	Sample Result mg/cm2
405-0643	1N	0.097	31
405-0644	1W	0.097	0.64
405-0645	1E	0.097	40
405-0646	1S	0.097	0.37
405-0647	2W	0.097	0.69
405-0648	2S	0.097	0.99
405-0649	2E	0.097	3.1
405-0650	2E-a	0.097	36
405-0651	2N	0.097	8.0
405-0652	3W	0.097	2.1
405-0653	3S	0.097	0.66

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Kevin W. Keeley
Laboratory Director

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
4050655	Paint Chips, 3N	5/10/94	Lead by EPA 3050/6010
	Wipe, 3N		Lead by EPA 3050/6010

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

GREAT LAKES ANALYTICAL

Kevin W. Keeley
Laboratory Director

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Harza Environmental Services, Inc.
233 South Wacker Dr., 8th Floor
Chicago, IL 60606
Attention: Kelly Kennoy

Client Project ID: 5541G, Dutch Boy Paint
Sample Descript: Paint Chips
Analysis for: Lead by EPA 3050/6010
First Sample #: 405-0643

Sampled: May 10, 1994
Received: May 11, 1994
Analyzed: May 17, 1994
Revised Report: May 20, 1994

LABORATORY ANALYSIS FOR: Lead by EPA 3050/6010

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg	Detection Limit %	Sample Result %
405-0643	1N	12	42,000	0.0012	4.2
405-0644	1W	5.0	81,000	0.00050	8.1
405-0645	1E	5.0	250,000	0.00050	25
405-0646	1S	5.0	2,700	0.00050	0.27
405-0647	2W	5.0	1,800	0.00050	0.18
405-0648	2S	7.3	600	0.00073	0.060
405-0649	2E	5.0	31,000	0.00050	3.1
405-0650	2E-a	5.0	29,000	0.00050	2.9
405-0651	2N	6.1	20,000	0.00061	2.0
405-0652	3W	6.0	4,000	0.00060	0.40
405-0653	3S	23	2,200	0.0023	0.22

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Kevin W. Keeley
Laboratory Director

APPENDIX A

GREAT LAKES ANALYTICAL 1380 Busch Parkway • Buffalo Grove, Illinois 60089 (708) 808-7766 FAX (708) 808-77

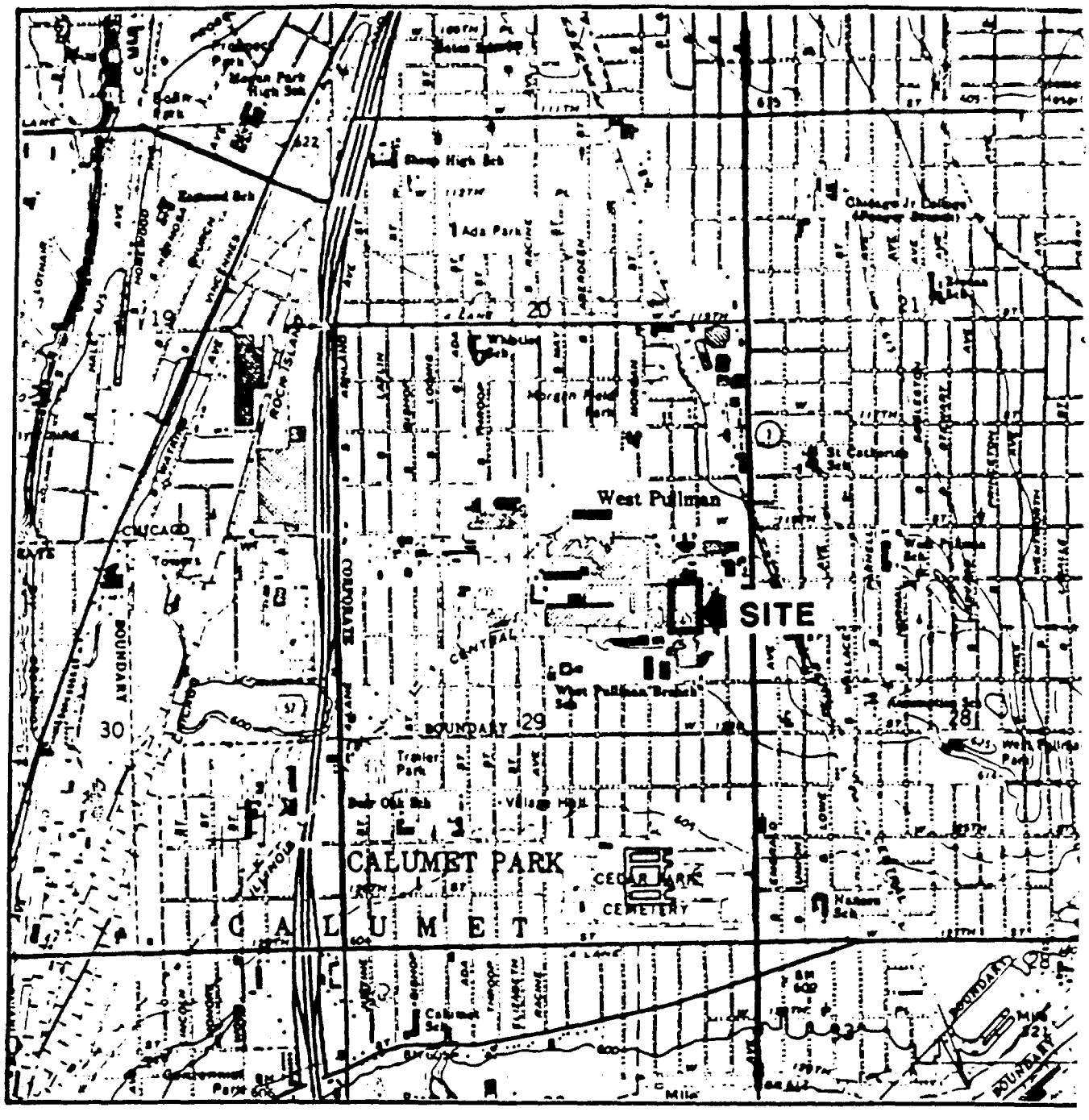
May 18, 1994

Harza Environmental Services, Inc.
233 South Wacker Dr., 8th Floor
Chicago, IL 60606
Attention: Kelly Kennoy

Project: 5541G, Dutch Boy Paint

Enclosed are the results from 12 special matrix samples received at Great Lakes Analytical on May 11, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
4050643	Paint Chips, 1N	5/10/94	Lead by EPA 3050/6010
	Wipe, 1N		Lead by EPA 3050/6010
4050644	Paint Chips, 1W	5/10/94	Lead by EPA 3050/6010
	Wipe, 1W		Lead by EPA 3050/6010
4050645	Paint Chips, 1E	5/10/94	Lead by EPA 3050/6010
	Wipe, 1E		Lead by EPA 3050/6010
4050646	Paint Chips, 1S	5/10/94	Lead by EPA 3050/6010
	Wipe, 1S		Lead by EPA 3050/6010
4050647	Paint Chips, 2W	5/10/94	Lead by EPA 3050/6010
	Wipe, 2W		Lead by EPA 3050/6010
4050648	Paint Chips, 2S	5/10/94	Lead by EPA 3050/6010
	Wipe, 2S		Lead by EPA 3050/6010
4050649	Paint Chips, 2E	5/10/94	Lead by EPA 3050/6010
	Wipe, 2E		Lead by EPA 3050/6010
4050650	Paint Chips, 2E-a	5/10/94	Lead by EPA 3050/6010
	Wipe, 2E-a		Lead by EPA 3050/6010
4050651	Paint Chips, 2N	5/10/94	Lead by EPA 3050/6010
	Wipe, 2N		Lead by EPA 3050/6010
4050652	Paint Chips, 3W	5/10/94	Lead by EPA 3050/6010
	Wipe, 3W		Lead by EPA 3050/6010
4050653	Paint Chips, 3S	5/10/94	Lead by EPA 3050/6010
	Wipe, 3S		Lead by EPA 3050/6010
4050654	Paint Chips, 3E	5/10/94	Lead by EPA 3050/6010
	Wipe, 3E		Lead by EPA 3050/6010

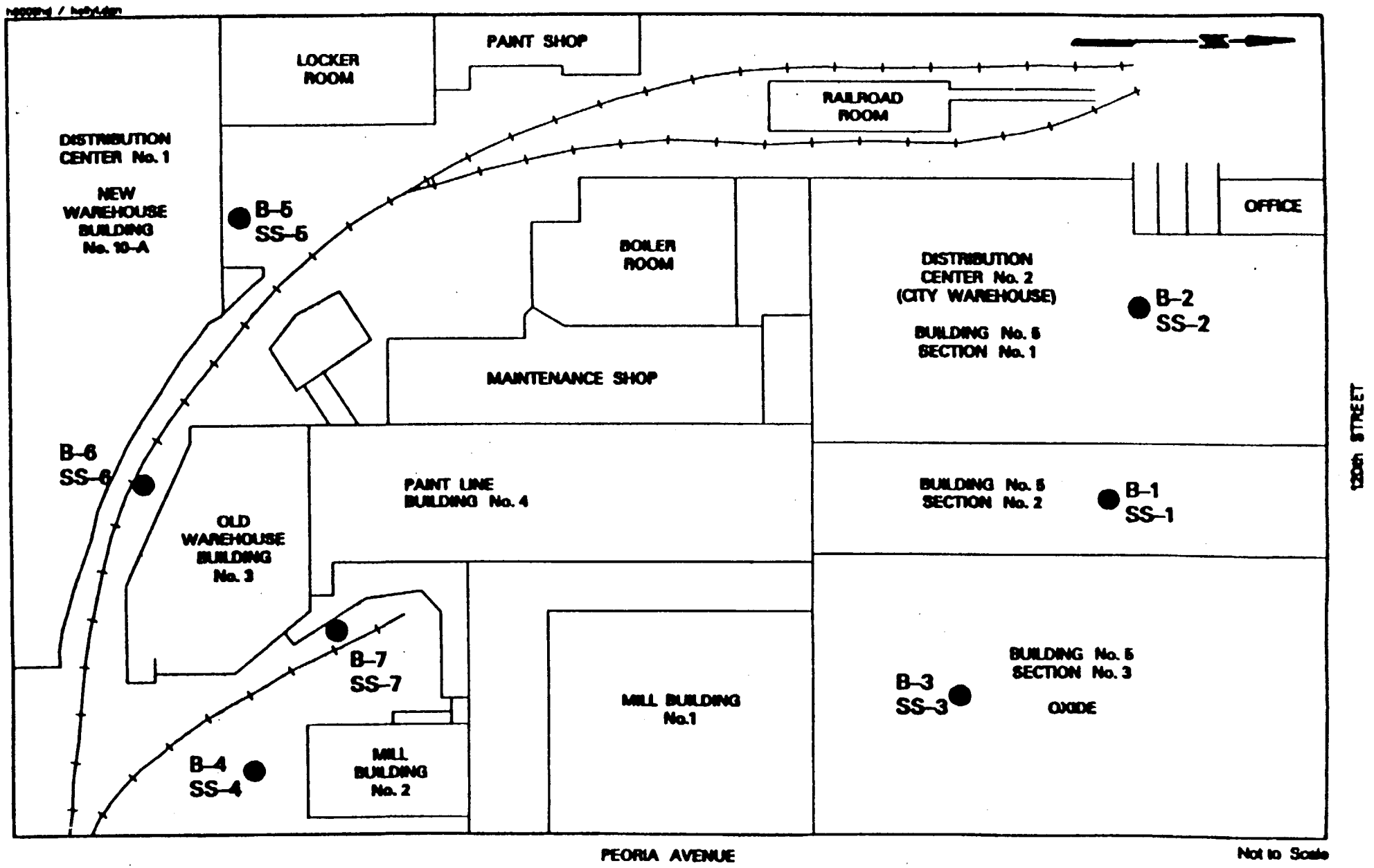


Figure

SITE LOCATION MA

FORMER DUTCH BOY PAINT SI
120th and Peo
City of Chicago, Illinc

HARZA ENVIRONMENTAL SERVICES, INC.



LEGEND:

● Sample /Boring Locations

Figure 2

BORING LOCATION PLAN

FORMER DUTCH BOY PAINT SITE